

# greenhouse

HOW TO BUILD A GREENHOUSE

This greenhouse, 2400mm wide x 3000mm long, is lightweight, portable (can be fixed more permanently if required), inexpensive and easy to construct. The cover is clear UV resistant polythene film. This greenhouse is ideal for those areas which have just enough winter frosts to be annoying.

## Where to place the greenhouse.

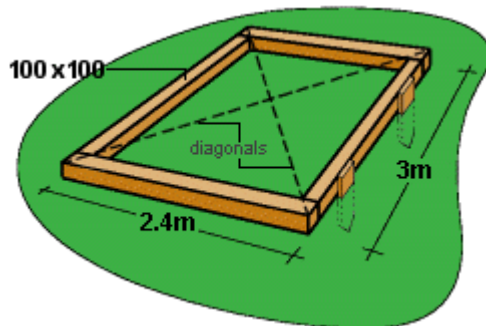
Pick a site likely to get the winter sun. The site should not be in a possible boggy area and should be level or in a place that is easy to make level. If the site is below a hill or slope, then it might be necessary to put in a drain (open, tile or scoria) to re-direct any water flow away from the greenhouse site.

## CHAPTER CONTENTS

- STEP 1. The greenhouse base
- STEP 2. The side walls
- STEP 3. The roof frames
- STEP 4. The end walls
- STEP 5. The windows
- STEP 6. The doors
- STEP 7. The greenhouse cover
- Materials and quantities

NOTE: For an explanation of any timber terminology used in this page, scroll down to **Glossary of terms used in this project.**

## STEP 1. The greenhouse base



Once the level greenhouse site has been determined, make the base, constructed out of 100x100 tanalised h4 sawn timber. This timber is readily available at any timber merchants and commonly used for fence posts. Standard lengths are 2400mm and

3000mm.

Make an oblong 3000mm x 2400mm as shown in the drawing above. Fix the timber together in the corners by using galvanised nails and nail plates.

Check that the two diagonal measurements are equal. If not make any necessary adjustments. When the diagonals are equal, then the base is square.

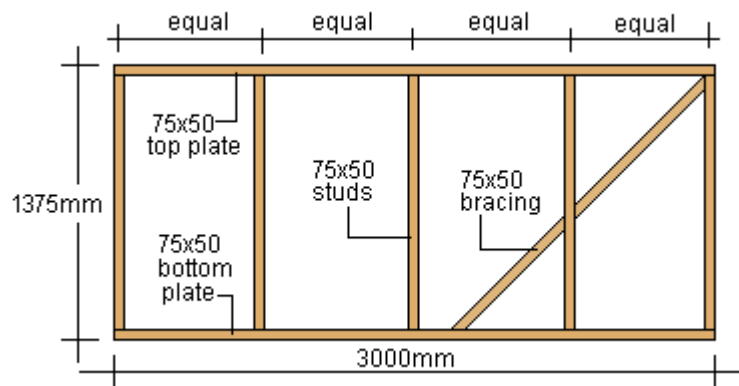
Check that the base is level, either by using a spirit level and a straight edge or by using [the water level method](#).

Secure the base in place by hammering pegs around the perimeter.

Nail the pegs to the base and trim off any pegs protruding higher than the base timber.

### STEP 2. The side walls

Construct all the framing out of 75x50 tanalised h3 sawn timber. This timber is readily available at any timber merchants and commonly used for fence rails and usually comes in lengths of 4800mm.

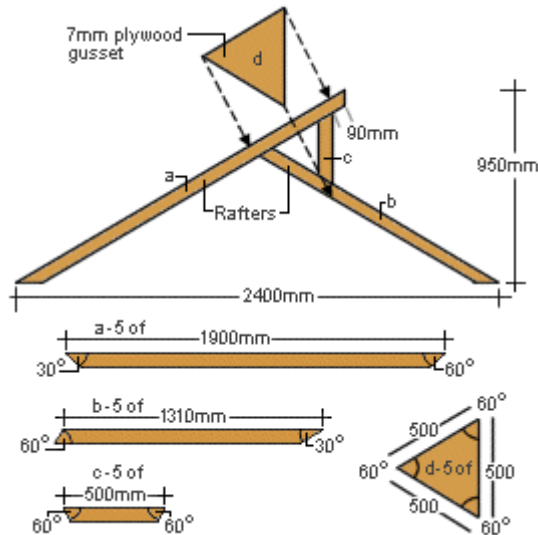


On a flat piece of ground, make two side walls up as per dimensions shown in the drawing above.

Make the diagonal measurements equal (in the same way as with the base in step 1.) and when the walls are square, cut and fix the bracing timbers in place. See above drawing.

Stand the two side walls upright and temporarily prop, in place, on top of the base. Fix the bottom plate of the side walls to the base boards with galvanised nails.

### STEP 3. The roof frames



Cut all roof frame pieces as per dimensions shown above. Use 75x50 tanalised h3 sawn timber.

In all, cut 5 rafters @ 1900mm, 5 rafters @ 1310mm and 5 uprights @ 500mm all with end angle cuts as shown in drawing.

Also cut five triangular gussets 500mmx500mmx500mm from a sheet of 7mm tanalised plywood.

On a flat piece of ground make up the five roof frames to the pattern and dimensions as shown in above drawing. Ensure the two futherest points are 2400mm apart and then nail the triangular gussets in place with galvanised flat head nails spaced about 50mm apart. One gusset to each roof frame.

Lift the 5 roof frames in place on top of the side walls. One roof frame to each end of the side walls and the other three spaced evenly in between. Fix the roof frames to the side wall top plate with galvanised nails.

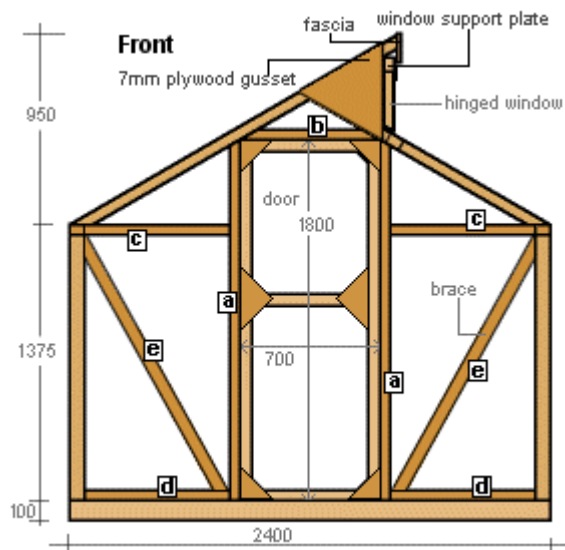
Temporarily prop the two end roof frames plumb (vertical).

Nail the fascia board (150x50 sawn h3) to the top of the roof frames as shown in below drawing making sure all the roof frames are vertical and parallel with each other.

Fix the window support plate (75x50 sawn h3) in place under the roof frame apex and behind the fascia bd. See drawing below.

Brace the roof on the side that has no windows. Nail metal strapping from the apex of both end roof frames down to the middle of the side wall top plate.

#### **STEP 4. The end walls**



Ensure side walls are plumb (vertical)

All wall framing timber 75x50 sawn tanalised h3

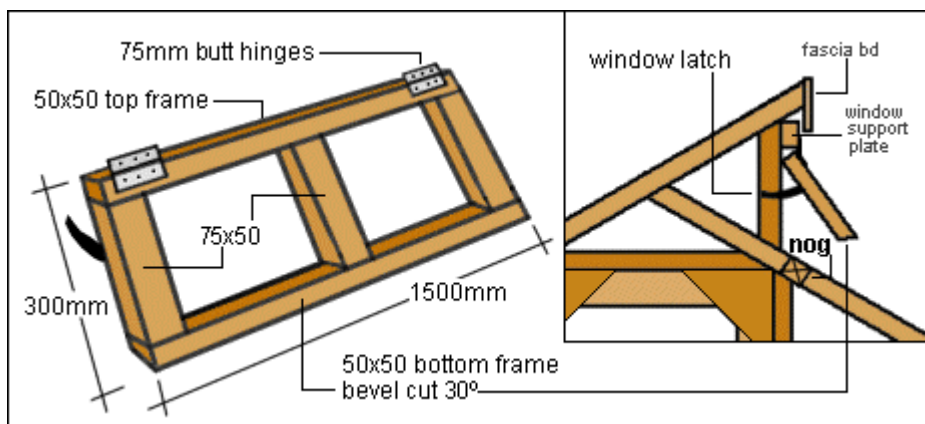
Cut studs (a) to size and fix in place. They should be 700mm apart to allow for the door.

Cut top plates (b) and (c) to size and fix in place.

Cut bottom plates (d) to size and fix in place.

Measure, cut and fix the bracing timbers (e) in place.

### STEP 5. The windows



For the windows use 50x50 sawn tanalised h3 for the top and bottom frames and 75x50 sawn tanalised h3 for the side and middle mullions.

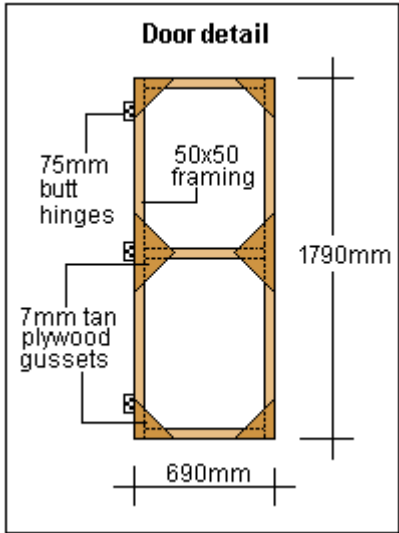
Bevell cut the bottom window frame 30 degrees which is the same pitch as the roof.

Make two windows as per dimensions above and fix in place with two butt hinges on each window screwed to the top frames of the windows and the window support plate.

Fit a window latch to each window.

Measure, cut and fix a row of nogs below the window and in between the roof frames.  
(see above drawing)

**STEP 6. The doors**



Make the doors (2, one each end of the green house) as per above dimensions.

Use 50x50 sawn tanalised h3 for the frames and cut the gussets from 7mm tanalised plywood.

Make the door frames up on an even piece of ground. Ensure frames are square and then nail the gussets in place on both sides of the doors.

Hinge the doors in place and fit handles or padbolts of your choice.

**STEP 7. The greenhouse cover**

Cover the greenhouse with an ultra-violet-resistant polythene.

Hold the coverings in place by laying thin battens over the polythene (when the polythene is taut) and nailing the battens to the greenhouse studs, roof rafters etc.

Cover the doors and windows also.

Most hardware merchants or garden suppliers only stock the standard plastic polythene that is not UV resistant, however, they should be able to advise you where to get the polythene required for the greenhouse covering.

**Materials and quantities**

| Item                                      | Description |
|---|-------------|
| 11m of 100x100 sawn h4 (pressure treated) | base        |

|   |          |
|---|----------|
| 11m of 100x100 sawn h4 (pressure treated) | base     |
| 3m 150x50 sawn h3 (pressure treated)      | fascia   |
| 2400x1200x7mm tanalised (treated) plywood | gussets  |
| 30sq m ultra-violet-resistant polythene   | covering |

## Glossary of terms used in this project

**BEAM:** A supporting member.

**BEVELL:** On an angle.

**BOTTOM PLATE:** Bottom horizontal member of a frame wall.

**BRACE:** To make rigid

**BUILDING LINE:** The outline of a building.

**CENTRES:** Crs; O.C; *Term used for spacing;* The measurement of spacing for studs, rafters, and joists in a building from the center of one member to the center of the next.

**CRS:** See centres.

**DIMENSIONS:** Any of the three linear measurements, length, breadth, and depth.

**DRESSED:** *Relating to timber.* Planed; Smooth, even surface; gauged.

**ELEVATION:** Side view of a building.

**END RAFTER:** Rafter each end of the roof frame.

**FASCIA:** Horizontal boards attached to rafter or truss ends at the eaves and along gables.

**FLUSH:** being even with

**GALVANISED:** Covered with a protective coating of zinc.

**GAUGED:** See dressed

**GUSSET:** a usually diamond or triangular-shaped plate or bracket for strengthening an angle in framework

**H3:** *Of timber* Pressure treated suitable for exterior use but not in-ground.

**H4:** *Of timber* Pressure treated suitable for exterior use and in-ground applications.

**H5:** *Of timber* Pressure treated suitable for exterior use and in-ground structural applications.

**LONGITUDINAL:** Running the length of the building.

**MEMBER:** Piece of timber that is part of a frame or structure.

**NAIL PLATE:** *Gang nail plate;*

Metal plate with rows of sharp points that are hammered into butt-jointed timber to secure the join.

**NOG:** See noggling.

**NOGGING:** *Trimmer;* A short piece of timber set between two studs, joists, rafters or purlins to keep them rigid.

**O.C.:** On centre; (See centres)

**PERIMETER:** boundary.

**PLANE BRACE:** A diagonal brace running along the plane of a roof.

**PLANED:** See dressed.

**PLUMB:** Vertical; Upright.

**PROFILES:** *Timber profiles;*

Horizontal boards attached level to stakes, used to mark out the boundary of a construction and establish the levels.

**RAFTER:** Parallel members of a roof that support battens/purlins and roofing materials.

**RECTANGLE:** Four sided figure with four right angles.

**SAWN:** *Rough sawn;* Not gauged, planed or dressed.

**SPIRIT LEVEL:** Tool used to ensure surfaces are level or plumb by means of a bubble in a tube of liquid fitted to the level.

**STUD:** A vertical wood framing member, attached to the horizontal bottom plate below and the top plate above

**TAN:** See tanalised

**TANALISED:** Pressure treated timber for exterior use

**TIMBER PROFILE:** See profiles.

**TOP PLATE:** Top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.

**TRIMMER:** See noggings

**VERTICAL:** See plumb.